

Overview of Lake Okeechobee Protection Program

The Lake Okeechobee Protection Program (Chapter 00-130, Laws of Florida) was passed by the 2000 Legislature. This Program committed the State of Florida to restore and protect Lake Okeechobee. This will be accomplished by achieving and maintaining compliance with water quality standards in Lake Okeechobee and its tributary waters, through a watershed-based, phased, comprehensive and innovative protection program designed to reduce phosphorus loads and implement long-term solutions, based upon the Lake's Total Maximum Daily Load (TMDL). The Program sets forth a series of activities and deliverables for the coordinating agencies: the South Florida Water Management District (hereafter, District); the Florida Department of Environmental Protection (hereafter, FDEP); and the Florida Department of Agriculture and Consumer Services (hereafter, FDACS). This is the second annual report to the Legislature, and summarizes the water quality and habitat conditions of the Lake and its watershed, implementation activities of the past year including the status of the Lake Okeechobee Construction Project, challenges, and unresolved issues. The report also identifies areas for future legislative support to successfully implement the state's commitment to protect and restore this resource.

Water Quality and Habitat Conditions in Lake Okeechobee and the Watershed

Lake Okeechobee functions as the central part of a large, interconnected aquatic ecosystem in south Florida and as the major surface water reservoir of the Central and Southern Florida Flood Control Project. The Lake provides a number of values to society and nature including water supply for agriculture, urban areas and the environment, flood protection, a multimillion dollar sport and commercial fishery, and habitat for wading birds, migratory waterfowl, and the federally endangered Everglades Snail Kite. These values of the Lake have been threatened in recent decades by excessive phosphorus loading, harmful high and low water levels, and rapid expansion of exotic plants.

Specific Issues of Concern

Water Quantity

- High water levels in certain years have damaged the Lake's submerged and emergent plant communities, which provide important habitat for fish and wildlife.
- Phosphorus-rich mud sediments at midLake are frequently resuspended by wind and transported to ecologically sensitive shoreline areas especially during times of high Lake levels.
- Periodic drawdowns of the Lake, either natural or human-induced, can provide net benefits to the ecosystem, but they include a risk to water supply and can actually harm the ecosystem if they are too extreme.
- As a result of a 1 in 300 year drought, occurring in the year after the District carried out a managed recession of the Lake, the stage dropped just below 9 ft. in June 2001, a record low stage.
- Because of drought conditions throughout south Florida the District imposed mandatory water restrictions on various agricultural and urban users on November 29, 2000. The restrictions were lifted October 16, 2001 as a result of ample wet season rainfall and near normal Lake levels.

- The District also performed actions to augment the water inputs to the Lake, under an emergency authorization from the FDEP. As a result of back-pumping water from the Everglades Agricultural Area (EAA), back-flowing water at other structures, and normal surface water runoff in the wet season, the Lake stage increased to over 14.5 ft. on October 25, 2001.

Ecological Attributes

- Over the last three decades, pollution-tolerant invertebrates have replaced the native invertebrates in the Lake sediments, possibly affecting food quality for fish and birds.
- During this same period, exotic plants have rapidly expanded in the Lake's littoral marsh, reducing habitat quality. Cattail has expanded in areas of the littoral marsh directly in contact with phosphorus-enriched water.
- In 2001, when Lake stage declined below 10 ft., vast nearshore areas were exposed.
- Most of the submerged plants that had recovered in 2000 were stranded on the dry Lake bottom. However, research indicated that some of the buried seeds of these plants remained viable.
- When Lake stage increased in August-September 2001, the submerged plants began to germinate and recolonize the flooded shoreline areas (Figure 1). Most of the recovery was due to *Chara*, a small plant-like alga that does not provide valuable habitat for fish. A high biomass of more desirable (e.g. eelgrass) submerged plants is expected in spring-summer 2002, as long as favorable Lake stages occur.
- When the shoreline was exposed, seeds of bulrush (a critical habitat for fish and a natural wave break along the shore that protects other plants) germinated and, by late summer, 1-3 ft. tall young bulrush plants occupied extensive areas around the Lake. Stands of mature bulrush also expanded during this period.
- Because young bulrush had not established strong root systems before the onset of the windy season (October), some of the plants in the recovering community have been uprooted by waves. Until the end of the windy season (around April) it will not be certain what percentage of new bulrush survived.
- During 2000 to 2001, staff from the District, U.S. Army Corps of Engineers (USACE), other state and federal agencies, and many private citizens worked together to plant over 12,000 mature bulrush plants in the northern region of the Lake. A high survival rate (>50%) occurred.
- There is evidence that torpedograss, an exotic invasive plant, spread more rapidly into native plant habitat in the littoral marsh while Lake stage was very low.
- Low stage also allowed for the use of controlled fires in areas of the littoral zone with dense established stands of torpedograss, brazilian pepper, and cattail. Funds from the Florida Legislature were used for treatment of 4,600 acres of torpedograss.



Submerged Vegetation Map for Lake Okeechobee, Sept. 2001

Lake Okeechobee Division

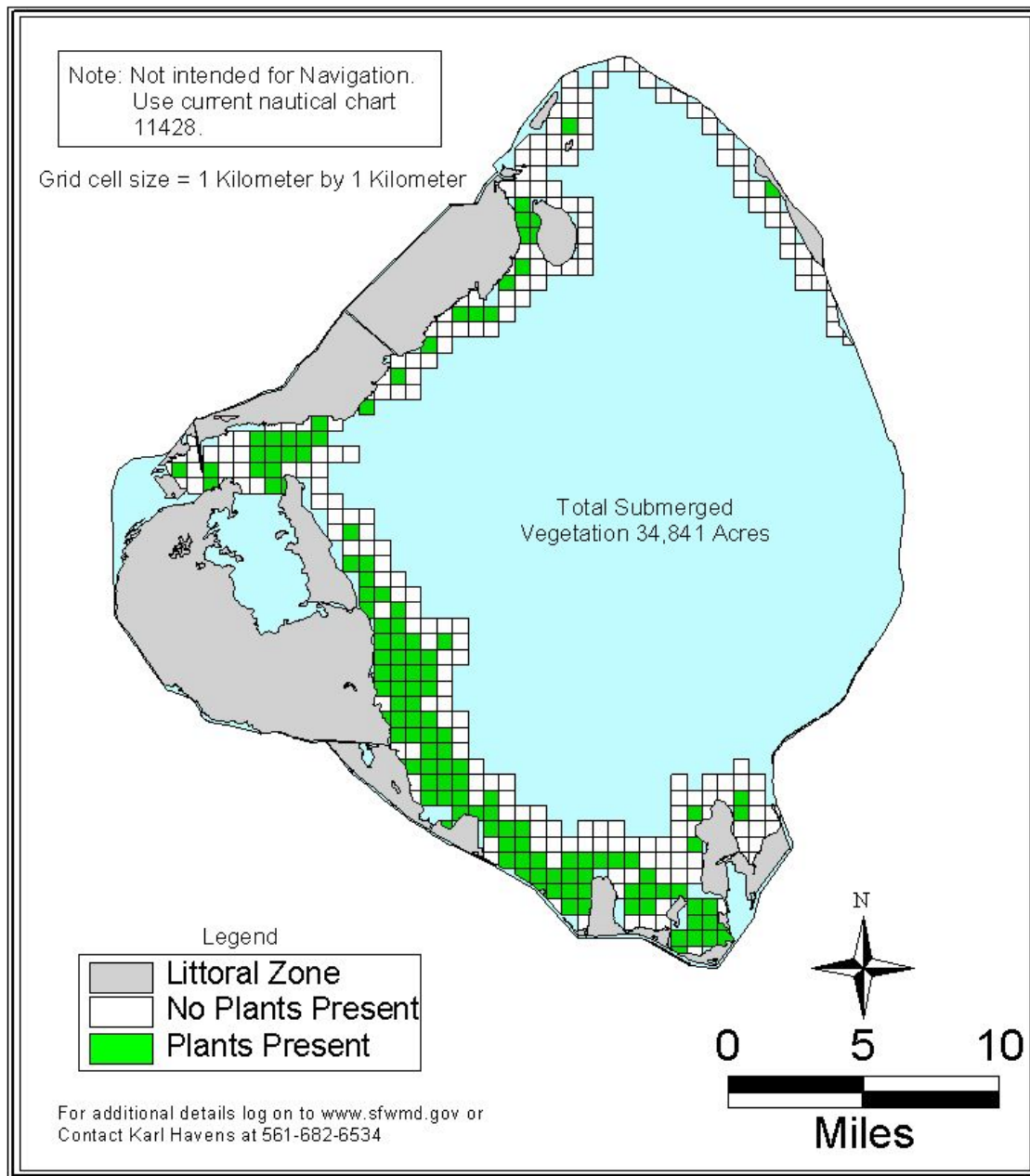


Figure 1. Distribution of submerged aquatic vegetation in Lake Okeechobee as of September 1, 2001.

Water Quality

- Total phosphorus concentrations in the Lake have doubled since the early 1970s, now averaging approximately 120 parts per billion (ppb).
- There is a high rate of phosphorus loading from both the watershed (external loads) and from the mud sediments within the Lake (internal loads).
- The in-Lake sediments may be losing their ability to assimilate phosphorus and may be contributing to the increased phosphorus concentration in the Lake.
- The Lake periodically experiences large surface blooms of blue-green algae that can potentially be harmful to fish, wildlife, and humans who use the water for drinking.
- During the summer of 2001, municipalities at the south end of the Lake experienced problems with taste, odor, and trihalomethanes. This problem may be exacerbated by changing water conditions within the Lake.
- During spring and early summer 2001, water clarity in shoreline areas of the Lake was very high and conducive to growth of submerged plants at locations that remained flooded.
- Water clarity declined in late summer and early fall 2001, due to a combination of Lake stage increases after large surface water inflows from the north, west, and south, and increasing wind in the fall and winter.
- Despite high phosphorus concentrations in the Lake during 2001, there were no major algal blooms. This is likely due to light limitation by high turbidity resulting from wind-driven resuspension of bottom sediments.

Measured annual phosphorus load to the Lake from the watershed declined extensively in 2000-2001 compared to all years in the past decade (Table 1). In 2000 south Florida experienced one of the worst droughts on record. Because inflows were reduced dramatically, so were loads to the Lake. Despite the low loads to the Lake, the 1997 Surface Water Improvement and Management (SWIM) Plan target was exceeded by 95 metric tons. The reason for this over-target load is because the SWIM-based target varies depending on inflow (i.e. the less inflow, the lower the target becomes). The relevant data for the last 11 years are included in the following table on historical loads for the entire watershed entering Lake Okeechobee.

Table 1. Total Phosphorus Loads to Lake Okeechobee 1990 through 2000.

Year	Actual Load (metric ton)	Target Load (metric ton)	Annual Over- target load (metric ton)	Long-Term Over-target load (5-yr moving average)
1990	425	245	180	173
1991	474	567	-93	111
1992	418	280	138	115
1993	323	232	91	102
1994	604	487	117	86
1995	707	439	268	104
1996	225	205	20	127
1997	492	471	21	103
1998	804	462	342	154
1999	689	343	346	200
2000*	194	99	95	165

*Year 2001 load data will not be quality controlled/quality assured until June 2002.

****Based on the long-term average TMDL of 140 metric tons set by the FDEP (2001), the current long-term average over target load is 346.8 metric tons yr⁻¹.**

Restoration Strategy

An integrated watershed and Lake management strategy is being used to improve the condition of Lake Okeechobee. This strategy is based on the implementation of Best Management Practices (BMPs) at the parcel level, implementation of sub-basin and regional phosphorus control technologies, and in-Lake remediation projects. The information obtained from parcel-scale activities, the existing Works of the District Program, Phase I of the Lake Okeechobee Construction Project, and Lake inflow structure monitoring will be evaluated to assess the progress towards achieving the current and proposed phosphorus discharge standards into Lake Okeechobee.

Achieving the level of phosphorus load reduction required by the TMDL will require actions at the three scales previously described. At the parcel-scale level individual landowners, both agricultural and nonagricultural, will implement measures to reduce the amount of phosphorus migrating off their parcels of land. Use of BMPs implemented as a non-regulatory process is considered the most appropriate parcel-scale action. The cooperating agencies are working together to develop BMPs for the major landuses in the watershed.

The FDACS and District are working together to develop and implement additional BMPs and Best Available Technologies (BATs) on the dairies in the watershed. In addition, FDACS is developing a voluntary BMP implementation program for other agricultural activities including cow-calf operations, vegetables, and citrus, modeled on the success of the citrus BMP efforts in the Indian River Lagoon watershed. The FDEP and District have been supporting the development of BMPs for beef cattle through a cooperative project with the MacArthur Foundation and Archbold Biological Station.

In-Lake restoration activities include the control of exotic vegetation, the removal of an organic berm along the northwest shore of the Lake, and sediment dredging projects along key access points to the Lake and/or rim canal. The planting of desirable native vegetation is also being conducted, and restoration of the islands along the south shore of the Lake is in the planning stages.

The Lake Okeechobee Protection Act defined Phase I of the Lake Okeechobee Construction Project as those project features designed to improve the hydrology and water quality of Lake Okeechobee and downstream receiving waters, consistent with the recommendations included in the South Florida Ecosystem Working Group's Lake Okeechobee Action Plan. Phase I of the Lake Okeechobee Construction Project includes several Critical Restoration projects that were authorized in the Water Resources Development Act of 1996. These include the isolated wetlands restoration projects and the construction of two stormwater treatment and detention facilities in the priority basins. Phase I also includes the Comprehensive Everglades Restoration Plan's (CERP) project for north of the Lake storage. A watershed assessment will be initiated in 2002 to define the extent and features of this CERP project.

Major Accomplishments and Status/Progress of Restoration Activities

Highlights of the 2001 efforts include the following:

- The coordinating agencies (Interagency Coordinating Group) continue to meet monthly to coordinate efforts and discuss, identify, and resolve issues. Other key partners that participate include the Institute of Food and Agriculture Sciences of the University of Florida (IFAS), the USDA Natural Resources Conservation Service (NRCS), and the Florida Fish and Wildlife Conservation Commission (FWC)
- The coordinating group has assigned lead agencies and teams for each of the major tasks outlined in the law (see attached Lake Okeechobee Protection Program, Program Management Plan).
- Agricultural Nutrient Management Assessments have been completed for all active dairies in the priority basins, representing over 31,000 acres. An additional 16,600 acres, covering buyout dairies, have also had nutrient management assessments completed.
- Four large cow/calf operations, representing 15,331 acres, are currently in the advanced stages of the nutrient management planning process. Over 40 additional cow/calf producers within the priority basins, representing 153,785 acres, have also agreed to participate in the planning process.
- The District is completing an economic analysis to evaluate the cost-effectiveness of different phosphorus control alternatives (PCAs). Cost-effectiveness in reducing phosphorus is an implicit part of the overall legislation, and is explicitly referred to in various activities. Benefits and costs of each alternative to the landowners, agencies, and the regional economy will be described and quantified.
- The District assisted the FWC with funding to complete muck removal in Lake Istokpoga and remove portions of the organic berm removal along the northwest shore of Lake Okeechobee.
- FDEP has developed a phosphorus TMDL for Lake Okeechobee of 140 metric tons (Chapter 62-304.700(1), F.A.C.). Attainment of the TMDL shall be calculated using a 5-year rolling average of the monthly loads calculated from measured flow and concentration values.
- The District submitted to FDEP its permit application for the Lake Okeechobee Operating Permit by the due date of September 1, 2000. This permit covers structures that flow into or out of the Lake that are owned, operated, or maintained by the District. Additional information was provided to FDEP in March 2001, and District and FDEP staffs are continuing discussions on the potential permit requirements. A draft permit is anticipated in early 2002.
- A draft of the Lake Okeechobee SWIM Plan Update has been completed and is under review.

A status update on the primary components of the Lake Okeechobee Protection Program is presented in the following sections. In addition, a description of each project, goals and objectives, activities accomplished in 2001, and funding are provided in the appendix.

Lake Okeechobee Construction Project (373.4595(3)(b)), F.S.

Phase I of the Lake Okeechobee Construction Project includes the implementation of three elements specifically identified in the Lake Okeechobee Protection Program. The following is a summary of the actions taken in 2001 to expedite completion of these elements.

Lake Okeechobee Water Retention/Phosphorus Removal Critical Project

- Construction of two isolated wetlands will be initiated in 2001-2002.
- Construction of the remaining two isolated wetlands will be complete by November 2002.
- New Palm Dairy has been acquired for one of the pilot stormwater treatment areas.
- Preparation of construction contract plans and specifications are under way and will be complete by April 2002 for the two pilot Stormwater Treatment Areas (Grassy Island and New Palm Dairy).
- Construction of the pilot Stormwater Treatment Areas will be initiated in 2002.

Tributary Sediment Removal Pilot Project

- Contractor has submitted a permit application for the implementation of two alternative sediment trap methods. Construction is anticipated to begin in January 2002.

Lake Okeechobee Watershed Project (LOWP)

- The four CERP Projects in the northern Lake Okeechobee watershed are being merged into one planning effort to realize efficiencies that will result from the integration of project features to maximize benefits.
- A project management plan has been developed and approved for the LOWP. Because of its high priority, this was one of the first CERP project management plans completed.
- The schedule for completion of the four CERP projects in the LOWP calls for completion of construction by 2013. Within that timeframe, the Taylor Creek/Nubbin Slough Reservoir Assisted Stormwater Treatment Area (RaSTA) is scheduled for completion in 2010.
- Lands at the Grassy Island Ranch were acquired in 2001. This parcel will be used for the Taylor Creek/Nubbin Slough project component.
- A contract to provide professional services for the development of Project Implementation Reports for the LOWP will be awarded in early 2002.

Phase II of the Lake Okeechobee Construction Project calls for the development and implementation of those additional projects necessary to achieve the TMDL of 140 tons of phosphorus discharged to Lake Okeechobee. The specific plan that documents the construction facilities, size and location in the watershed, a construction and land acquisition schedule, and detailed schedule of costs must be developed by January 2004. In addition, the plan must identify potential impacts on wetlands and state-listed species that could occur as a result of the construction project and develop alternatives to mitigate and minimize these impacts, as appropriate. A number of current projects will be providing critical information necessary to develop the plan including the CERP watershed assessment, the implementation and success of BMPs and BATs, and evaluations of alternative phosphorus reduction approaches.

Lake Okeechobee Watershed Phosphorus Control Program

A considerable effort has been expended in 2001 on watershed phosphorus control projects by the District, FDACS, FDEP, and the NRCS (Figure 2). FDACS has initiated and completed several efforts, as listed below. Additional information is provided in the appendix.

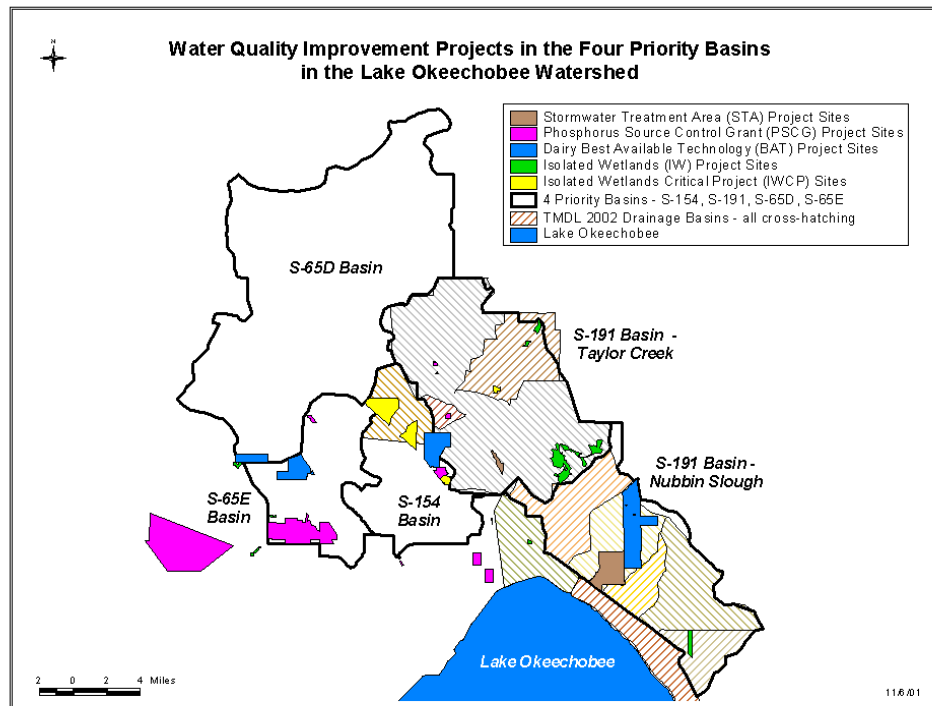


Figure 2. Water Quality Improvement Projects in the Four Priority Basins in the Lake Okeechobee Watershed.

- The coordinating agencies have developed a memorandum of understanding that addresses nonagriculture and agriculture nonpoint sources of pollution.
- The coordinating agencies agreed that the first step to successfully control phosphorus is to develop a tool to determine specific on-farm current and future phosphorus sources and the best mechanisms to control those sources. The development of this tool, called an Agricultural Nutrient Management Assessment (AgNMA) was completed this year.
- AgNMAs have been completed for all active dairies in the priority basins, representing over 31,000 acres. An additional 16,600 acres, covering buyout dairies, have also had nutrient management assessments completed.
- Four large cow/calf operations, representing 15,331 acres, are currently in the advanced stages of the planning process. This activity is being coordinated with the USDA/NRCS to expedite the planning effort. It is anticipated that these initial cow/calf properties will have completed the planning process by the end of

December 2001. Over 40 additional cow/calf producers within the priority basins, representing 153,785 acres, have agreed to participate in the planning process (Figure 3).

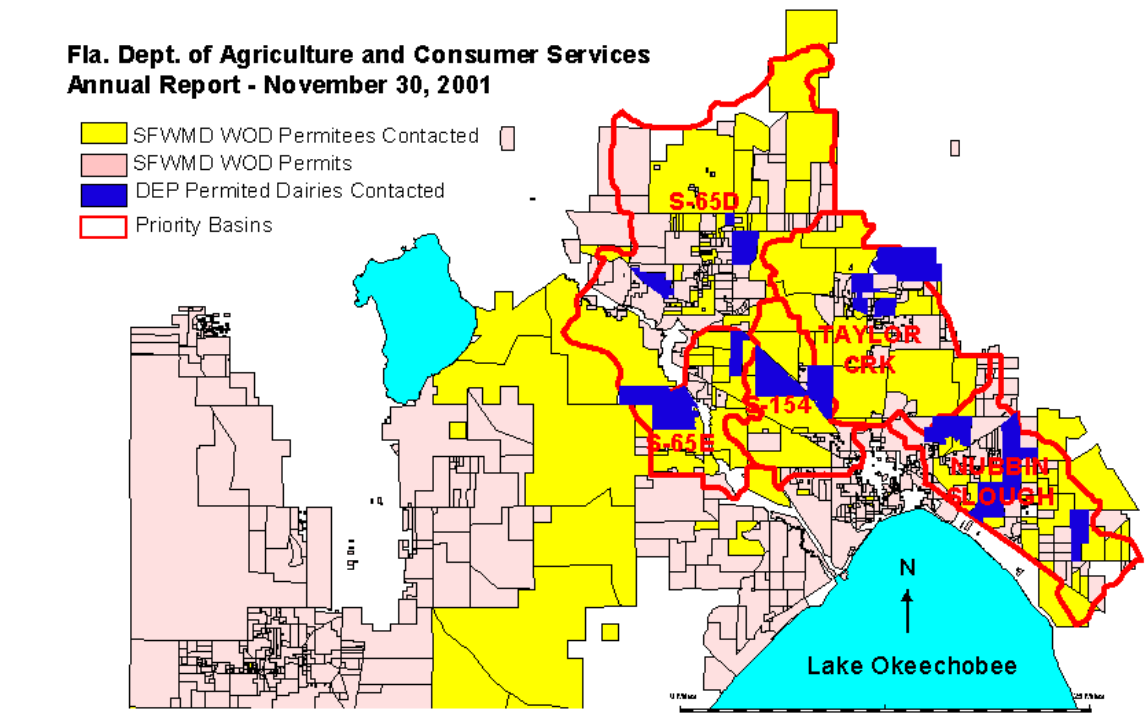


Figure 3. Florida Department of Consumer Services Landowner Contacts in the Four Priority Basins in the Lake Okeechobee Watershed.

- Nutrient management planning, particularly for the dairies referenced above, will transition into the design, construction, and operation of phosphorus control and management strategies.
- To further expedite the development of AgNMA's, FDACS has contracted with the IFAS to provide training and certification to third parties wishing to participate in the development of nutrient management and/or conservation plans.
- FDACS is in the administrative rule making process to formally adopt BMP manuals aimed at cow/calf operations and citrus producers.
- FDACS and the NRCS are pursuing the execution of an interagency Memorandum of Agreement that commits the available resources within the two organizations to cooperate in the delivery of nutrient and conservation management planning to agricultural landowners in the watershed. In addition to leveraging as much state and federal dollars as possible for planning and cost share programs, the two organizations are working cooperatively with other partners in the preparation of a Public Law 566 (PL-566) Small Watershed proposal for consideration by Congress to greatly increase the amount of federal funding available for BMP planning, implementation and cost share.
- FDACS has completed the recruitment of staff to oversee and coordinate the implementation of the Lake Okeechobee Phosphorus Control Program.

- The District, in cooperation with an interagency team, has awarded funding to 12 phosphorus-reducing projects under the State-appropriated Phosphorus Source Control Grant Program.
- The District, in cooperation with an interagency team, has evaluated nine sites under the State-appropriated Isolated Wetland Restoration and Creation Program.
- FDACS is presently developing a row crop BMP manual for use in the Okeechobee watershed.
- FDEP has contacted all wastewater facilities and residuals haulers that land-apply biosolids in the Lake Okeechobee Watershed and has modified all permits. Two sites continue to receive biosolids and have submitted an agricultural use plan that limits applications based on phosphorus. Additionally, a phosphorus load study has begun and is under review by FDEP.
- IFAS has developed interim nutrient application rates for home lawns, and parks and recreation areas. FDEP is currently working with IFAS on establishing state-wide nutrient application rates for turf grasses.
- FDEP, in consultation with interested parties, has developed interim measures, BMPs, or other measures necessary to reduce phosphorus load reduction from nonagricultural nonpoint sources. FDEP is currently developing an Okeechobee specific BMP manual that will include the best management practices that are available in the Florida Land Development Manual, The Florida Stormwater, Erosion, and Sedimentation Control Inspector's Manual, and A Guide to Environmentally Friendly Landscaping – Florida Yards and Neighborhoods Handbook.

The following District contracts are completing their first year of activities and most are in the permitting stage or implementation phase:

- The District is in the process of updating the watershed phosphorus budget. The phosphorus budget update should be completed in the spring of 2002.
- The District and FDEP are jointly conducting a biosolids fate and transport study to identify any environmental and health problems associated with the use of residuals and chicken manure in the watershed. Results will include BMP application rates for landowners. The waste materials have been characterized and construction for the field study is under way.
- The District has been evaluating technologies for the dairies under the Best Available Technology (BAT) project. An edge-of-farm stormwater detention pond for water reuse and a chemical treatment system was the highest ranked technology to meet the water quality goals in the shortest time period. Phosphorus load monitoring, design, and implementation will commence in December 2001 on three participating dairies.

Lake Okeechobee Research and Water Quality Monitoring Program

The District, in cooperation with FDEP and FDACS, will complete an extensive research and water quality monitoring program to provide the necessary information for the Lake Okeechobee Protection Plan, which will be completed in 2004. This program will include a water quality baseline to represent existing conditions for total phosphorus (TP), monitoring for long-term ecological changes, and measure compliance with water quality standards. Current monitoring efforts include the following projects:

- Lake Okeechobee Inflow/Outflow;
- Dairies under the 1987 FDEP Dairy Rule;

- All non-dairy land uses permitted under District Rule 40E-61 for permit compliance. A total of 150 parcels are monitored biweekly.

Data collected under these projects are utilized to calculate phosphorus loads to Lake Okeechobee, determine compliance with Class I and Class III water quality standards, determine compliance with permitted phosphorus discharge concentrations from individual parcels, and report the effectiveness of the FDEP Dairy Rule. The monitoring program was expanded in 2001 to include several components of the Lake Okeechobee Protection Program, as well as respond to drought conditions, as follows:

- Monitoring of water supply discharges from Lake Okeechobee in the spring of 2001;
- Monitoring of water supply back-pumping and augmentation flows into Lake Okeechobee authorized by FDEP Emergency Order No. 01-1202;
- Contracted with Polk and Orange Counties to perform routine water quality monitoring of a dairy in Polk County under the FDEP Dairy Rule, pool A of the Kissimmee River, and the Kissimmee Chain of Lakes and its tributaries. This action allowed redirection of District staff to higher priority activities;
- Baseline water quality and nutrient loads in Taylor Creek for the Grassy Island STA;
- Phosphorus load monitoring at three dairies for model calibration.

Additional monitoring projects are in the planning or implementation phase. They are:

- Phosphorus load monitoring of C-40 and C-41 for inputs and outputs from the Seminole Indian Tribe Brighton Reservation;
- Development of a phosphorus load monitoring network at the sub-basin level to monitor the effectiveness of agricultural and nonagricultural BMPs in partnership between the District and the Department of Agriculture;
- Partnership between the United States Geological Survey, USACE, and the District in development of a monitoring network to evaluate the effectiveness of CERP projects within the Okeechobee basin;
- A study by Florida International University through a District contract to improve the quality of nutrient load monitoring at pump station S5A. If successful, the methodology may be applied to pump stations S2, S3, and S4 to improve the quality of nutrient load monitoring from backpumping operations into Lake Okeechobee.
- A study by Florida International University through a District contract to improve the quality of nutrient load monitoring at multi-gated District control structures. The study will be performed at S-65E.

The District continues to evaluate watershed monitoring networks to verify that the appropriate and necessary data are being collected, and that redundant or obsolete efforts are discontinued.

Other specifically identified components of the Research and Monitoring Program include: 1) development of a Lake Okeechobee water quality model; 2) determination of TP sources within the watershed; 3) assessment of TP sources from the Upper Kissimmee Chain of Lakes and Lake Istokpoga; 4) assessment of water management practices within the watershed; and 5) evaluation of the feasibility of alternative nutrient reduction technologies. Projects under this program are moving forward on schedule to meet the deadlines set forth in the Lake Okeechobee Protection Act. For more information on these projects, refer to the appendix.

Lake Okeechobee Exotic Species

The District has been carrying out an effective program to eradicate melaleuca, and is beginning to implement a program, in cooperation FDEP, to control torpedograss. Until now, torpedograss has spread unchecked in the Lake's littoral zone, displacing valuable native plant communities. Scientists at the District have worked closely with managers to identify the optimal treatment methods for killing the invasive grass. Present efforts are using a combination of controlled fire and the contact herbicide Arsenal®. During 2000-2001, the coordinating agencies treated over 4,600 acres of torpedograss in this manner. A much larger area of the littoral zone will be treated in future years. Because Arsenal® is a non-selective herbicide, one issue of concern is how to achieve good control of torpedograss while allowing native plants to re-colonize treated sites. A major focus of the exotic plant research in 2001-2002 will be in screening alternative herbicides that can more selectively control torpedograss, and in evaluating the potential for use of bio-control agents against this exotic plant. Experts are also evaluating whether or not torpedograss can spread by seeds, as suggested by some limited previous work. The answer will dramatically affect the scope and duration of torpedograss control on the Lake.

Lake Okeechobee Internal Phosphorus Management

The Lake Okeechobee Sediment Management Feasibility Study is in the process of assessing the benefits, potential concerns, and costs associated with alternatives for addressing the internal phosphorus loading issue. An objective methodology that allows for review and input by experts and interested parties will be used throughout the study process. The study is considering both sediment removal and chemical treatment technologies.

The Lake Okeechobee Pilot Dredging Project is evaluating the feasibility and cost-effectiveness of removing the phosphorus-laden mud layer in the Lake using innovative dredging, material processing, and water treatment technologies. A demonstration project will commence in January 2002. The permit for this project was recently issued by FDEP.

In addition to the accomplishments outlined above, which were initiated to meet future year statutory requirements in the law, the coordinating agencies have met all the specific Calendar Year 2001 requirement deadlines.

Challenges/Unresolved Issues/Major Uncertainties

- Funds for monitoring phosphorus reductions by nonagricultural BMPs
- Adopting nonagricultural BMPs into the Works of the District program.

Encumbrances and Expenditures for 2000 and 2001

Table 2 indicates the distribution of funding, encumbrances, and expenditures for the State-appropriated funds from year 2000 and year 2001. Although indicating a slow start in the expenditure of funds, significant progress has been made with many of the programs as indicated in the attached project summaries.

Table 2. Year 2000 and 2001 State Funding Appropriations, Encumbrances and Expenditures for the Lake Okeechobee Protection Program.

Description	Appropriation	Encumbered	Expended	Balance	Comments
FDACS - FY01 One-time appropriation, 1591-G, 2000-01 GAA	\$ 15,000,000				
Salaries, Overhead and Travel			\$ 292,242		\$450,000 needed annually to support administration of Lake O. Protection Program
Operating Capital Outlay			\$ 128,748		
Motor Vehicles			\$ 59,904		
Administrative Overhead Transfer			\$ 47,004		
Certified Forward Encumbered Funds		\$ 156,120			
Dairy Nutrient Management Planning Contract			\$ 48,750		
Encumbered Funds		\$ 2,212			
NRCS Contract		\$ 300,000			
NRCS Contract		\$ 3,000			
Dairy Nutrient Management Assessments and Implementation				\$ 9,000,000	Engineering design and cost-share to implement dairy nutrient management plans
Nutrient Management Planning for Cow/calf Operations				\$ 3,400,000	Nutrient management planning and cost-share for cow / calf operations
IFAS Cow/calf Research and Demonstration Project				\$ 1,562,020	Research and demonstration for BMP development
TOTAL FOR FDACS	\$ 15,000,000	\$ 461,332	\$ 576,648	\$ 13,962,020	
SFWMD - FY01 Appropriation	\$ 23,500,000				
Lake Okeechobee P Source Control Grant Program					
3 Year Leased Position - Senior Planner	\$ 205,505	\$ 112,980	\$ 30,589	\$ 61,936	
Training	\$ 2,000			\$ 2,000	
Berryman & Henigar - Engineering Oversight Contract	\$ 300,000	\$ 300,000		\$ -	
LO Torpedograss Management	\$ 500,000		\$ 500,000	\$ -	
Davie Dairy, Inc.	\$ 158,655	\$ 158,655		\$ -	
Smith Okeechobee Farms, Inc.	\$ 409,560	\$ 409,560		\$ -	
Evans Properties, Inc.	\$ 157,000	\$ 157,000		\$ -	
Okeechobee Utility Authority, Ousley	\$ 506,000	\$ 506,000		\$ -	
Tampa Farm Service	\$ 1,300,810	\$ 1,300,810		\$ -	
Irene Lofton	\$ 92,000	\$ 92,000		\$ -	

Description	Appropriation	Encumbered	Expended	Balance	Comments
Aquaflorida, Inc.	\$ 516,600	\$ 516,600		\$ -	
SWA of PBC	\$ 1,125,000	\$ 1,125,000		\$ -	
Daniel & Marcia Candler	\$ 120,000	\$ 120,000		\$ -	
Hydromentia, Inc.	\$ 1,815,215	\$ 1,815,215		\$ -	
QED Environmental	\$ 291,655	\$ 291,655		\$ -	
TOTAL	\$ 7,500,000	\$ 6,905,475	\$ 530,589	\$ 63,936	
Grassy Island					
Taylor Creek STA Land & Land Improvement	\$ 8,000,000		\$ 8,000,000	\$ -	
Taylor Creek STA Land Acquisition Cost	\$ 500,000		\$ 500,000	\$ -	
TOTAL	\$ 8,500,000		\$ 8,500,000		
Restoration of Isolated Wetlands					
Easement Distributions to Landowners	\$ 2,425,924			\$ 2,425,924	For easement distribution to land owners. Nine sites have been ranked to determine which land owners require an easement.
3 Year Leased Employees - Senior Environmental Scientist, Staff Engineer	\$ 286,276	\$ 112,170	\$ 61,936	\$ 112,170	
Appraisal Services	\$ 12,800		\$ 12,800	\$ -	
Restoration Implementation Contract	\$ 875,000	\$ 875,000		\$ -	
Restoration Implementation Contract	\$ 750,000	\$ 750,000		\$ -	
Water Quality Monitoring Contract	\$ 150,000	\$ 150,000		\$ -	
TOTAL	\$ 4,500,000	\$ 1,887,170	\$ 74,736	\$ 2,538,094	
Project Culvert	\$ 3,000,000				
S-192 Gate & Pump Replacement	\$ 820,000	\$ 3,250		\$ 816,750	
PC-01-L59 Culvert Replacement	\$ 210,000			\$ 210,000	The survey is completed and is now in the drafting stage in the Construction Department.
L-62 Dredging	\$ 1,000,000			\$ 1,000,000	The survey is completed and is now in the drafting stage in the Construction Department.
L-63N Dredging	\$ 970,000			\$ 970,000	The survey is completed and is now in the drafting stage in the Construction Department.
TOTAL	\$ 3,000,000	\$ 3,250	\$ -	\$ 2,996,750	
TOTAL FOR SFWMD	\$ 23,500,000	\$ 8,795,895	\$ 9,105,325	\$ 5,598,780	
GRAND TOTAL FOR LAKE OKEECHOBEE FY01 APPROPRIATION	\$ 38,500,000	\$ 9,257,227	\$ 9,681,973	\$ 19,560,800	

Description	Appropriation	Encumbered	Expended	Balance	Comments
SFWMD - FY02 Legislative Appropriation for Lake Okeechobee Restoration	\$ 10,000,000				
In-Lake Restoration Projects (berm removal, Kreamer Is., etc.)	\$ 1,950,000			\$ 1,950,000	In development; permitting under way
Public-Private BMP Partnership	\$ 2,750,000			\$ 2,750,000	Under development
DEP Non-Ag Collaboration	\$ 575,000			\$ 575,000	Under development
Cow-Calf BMPs	\$ 450,000			\$ 450,000	Received Sec. 319 grant; cost share from DACs
Isolated Wetland Research	\$ 700,000			\$ 700,000	Proposals under review
Industrial Canal Sediment Removal	\$ 500,000	\$ 500,000		\$	Co-op agreement executed 11/2001
Pahokee Harbor Sediment Removal	\$ 250,000			\$ 250,000	Under development
Belle Glade Marina Sediment Removal	\$ 250,000			\$ 250,000	Under development
Glades Co./Moore Haven – Strm/Wst. Plan Update	\$ 250,000			\$ 250,000	Under development
Okee. Co. Strm/Wastewater Plan Update	\$ 175,000			\$ 175,000	Under development
Lake Istokpoga and Kissimmee Upper Chain of Lakes Watershed Assessments	\$ 400,000			\$ 400,000	SOW developed
Vegetation Replanting	\$ 45,000			\$ 45,000	Dependent on Lake stages
Torpedoglass Control Studies	\$ 110,000			\$ 110,000	SOW under development
Model Uncertainty Refinement	\$ 419,000			\$ 419,000	In procurement
LO Pilot Dredging Confined Disposal Facilities	\$ 40,000			\$ 40,000	Construction under way
LO Planning Contract/LO Protection Program, Program Management Plan Reporting	\$ 100,000			\$ 100,000	Under development
Expert Assistance	\$ 95,000			\$ 95,000	Under development
Regulatory Assessments	\$ 330,000			\$ 330,000	Scope under development
Equipment / Supplies	\$ 71,000			\$ 71,000	Being purchased
3 Year Leased Employees - Staff Engineer, (2) Senior Engineers	\$ 540,000			\$ 540,000	In recruitment
GRAND TOTAL FOR FY02 APPROPRIATION	\$ 10,000,000	\$ 500,000	\$ -	\$ 9,500,000	

Even in the short period of time since receiving the 2001 Legislative appropriation, progress is being made. Most noteworthy are the cooperative agreement between the District and Hendry County to dredge the Industrial canal, and FDEP award of Section 319 funds towards the cow/calf BMP demonstration project being conducted by IFAS (with cost sharing from FDACS and the District). All other projects are in the procurement or planning process.

Future Legislative Support

Continued funding will be required in future years to attain the restoration targets identified in the Lake Okeechobee Protection Program. In addition, there are other significant expenditures looming (e.g. rehabilitation of the Herbert Hoover Dike) that are included in this funding request. The coordinating agencies respectfully request the Governor and Legislature to favorably consider the following project requests. The projects are listed in descending order of priority, so that Project #1 is the highest

priority. Several of these projects are multiyear efforts; the amounts identified below reflect the amounts requested only for FY02-03.

1) Continuation of the Public/Private Partnership Program – This program is designed to encourage the participation of the private sector in the implementation of phosphorus control technologies. Total requested: \$2,000,000.

2) Implementation of Nutrient Management Practices and Best Available Technologies for Dairies - The purpose of this project is to implement, monitor, and evaluate the nutrient management practices and effective BATs to improve water runoff quality on dairies in the Okeechobee watershed. BMPs have failed to achieve phosphorus load reductions to the SWIM-mandated targets; these new technologies are needed to meet the SWIM target and ultimately, the TMDL for the Lake. This project also includes technology transfer to other dairy farmers in the watershed, so that the most environmentally and economically sound technologies can be implemented on a basin-wide scale. Total requested: \$5,000,000.

3) Water Quality Monitoring for the Lake Okeechobee Protection Program - This project will provide monitoring of water quality and quantity as defined in the Lake Okeechobee Protection Program, which is above the current level of effort. This monitoring program encompasses additional nutrient load monitoring within the northern Lake Okeechobee watershed and works constructed under the Lake Okeechobee Critical Projects Stormwater Treatment Areas. The total project cost is for capital and operational costs of the monitoring program for an eight-year period. The FY02-03 costs are for startup and operation costs for these two initiatives. Total requested: \$1,786,436.

4) Restoration of Torry, Kreamer, and Ritta Islands - The need for this project has been noted since the initial Lake Okeechobee SWIM Plan in 1989, and has not progressed due to limited funding and concerns about potential pesticide residue in the soils. Recent pesticide data from these islands indicate that concentrations are either below detection limits or at very low levels. Work to be conducted would include the removal of levees and filling of ditches, followed by planting of native wetland species such as pond apple. Total requested: \$2,000,000.

5) Urban Best Management Practices – This project includes the retrofit/rehabilitation of secondary drainage systems from subdivisions along the perimeter of the Lake. The project will provide assistance with maintenance dredging and retrofits of secondary canals, including Buckhead Ridge, Treasure Island, and Taylor Creek Isles. This should be conducted in coordination with the USACE, which has primary responsibility for navigation dredging. Total requested: \$500,000.

6) Continuation of In-Lake Restoration Projects – This includes sediment removal from areas along the west and south shores of the Lake (stage dependent), disruption of the organic berm along the northwest shore that prohibits water flow to the littoral zone, replanting of desirable native vegetation, and dredging of primary tributary canals that convey large sediment loads to the Lake. Total requested: \$2,500,000.

7) Herbert Hoover Dike Major Rehabilitation Project - The purpose of this project is to maintain the structural integrity of the Herbert Hoover Dike so that it will continue to provide reliable flood protection for the surrounding areas. Construction of the dike was initiated in approximately 1915 by local landowners. The dike was incrementally

expanded and raised over a period from the 1930s through the 1970s. Recent investigations indicate that it does not meet current applicable safety factors. In fact, recent high water levels in the Lake have resulted in the occurrence of several boils and pipings around the dike – indications of potential susceptibility to more substantive dike failure. This project is being conducted by the U.S. Army Corps of Engineers with the participation of District. The project will consist of remedial measures for slope stability and seepage control to reduce the risk of a breach of the southeastern 22.4 miles of the Herbert Hoover Dike. Future projects will address the rehabilitation of seven other sections of the dike, in priority order. Total requested: \$3,300,000.

8) Assessment of Higher Trophic Level Usage of the Lake's Littoral Zone - This project will establish wildlife values of the Lake's littoral zone by monitoring habitat utilization by wading birds, raptors, alligators, and other higher trophic organisms. This information will not only support the Lake Okeechobee restoration efforts, but will also provide key data for the Restoration, Verification and Coordination (RECOVER) program under the Comprehensive Everglades Restoration Program (CERP). It is anticipated that work would be conducted cooperatively with the FWC, and the U.S. Fish and Wildlife Service. Total requested: \$350,000.

9) Beef Cattle BMP Study - In order to achieve the phosphorus load target and hasten Lake Okeechobee's recovery, it is necessary to find ways to reduce phosphorus in runoff from beef cattle pastures. The collaborative research project at Buck Island Ranch seeks to evaluate a series of BMPs to protect and enhance Lake Okeechobee, while minimizing negative economic impacts to the agricultural community by including input from the stakeholder community. Total requested: \$145,000.